INEEL/EXT-01-01538
Revision 1

Health and Safety Plan for the Clean/Close RWMC Project Routine Monitoring

Kelly Wooley

Idaho Completion Project

Bechtel BWXT Idaho, LLC

April 2004

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Idaho Completion Project
Idaho Falls, Idaho 83415

Prepared for the
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Approved

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Date

ABSTRACT

This health and safety plan (HASP) establishes the requirements and controls that will be used to eliminate or minimize health and safety hazards associated with personnel conducting routine monitoring activities at Clean/Close RWMC (Waste Area Group 7) locations inside and outside the fence line of the Radioactive Waste Management Complex (RWMC).

This HASP has been prepared to meet the requirements of the Occupational Safety and Health Administration standard "Hazardous Waste Operations and Emergency Response" (29 CFR 1910.120). This HASP contains the safety and health hazards assessment for conducting all routine monitoring activities and lists controls and mitigative actions to be taken to eliminate or mitigate these hazards.

The intent of this document is to identify known hazards based on previously conducted routine monitoring tasks and to provide a plan for mitigating them. Waste Area Group 7 safety and health professionals supporting these tasks in conjunction with the sampling field team leader conducting these activities must determine the most appropriate hazard control and mitigation measures based on site-specific conditions and should make changes to this document as appropriate.

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TABLES

ACRONYMS

ACGIH	American Conference of Governmental Industrial Hygienists
ALARA	as low as reasonably achievable
ANSI	American National Standards Institute
ARDC	Administrative Record and Document Control
BBWI	Bechtel BWXT Idaho, LLC
CERCLA	Comprehensive Environmental, Response, Compensation and Liability Act
CFA	Central Facilities Area
CNS	central nervous system
CP	command post
CPR	cardiopulmonary resuscitation
CWA	controlled work area
dBA	decibel A-weighted
DOE	U.S. Department of Energy
DOE-ID	U.S. Department of Energy Idaho Operations Office
DWA	designated work area
EC	emergency coordinator
EPA	U.S. Environmental Protection Agency
ER	environmental restoration
ERO	emergency response organization
FID	flame ionization detector
FTL	field team leader
GI	gastrointestinal
HASP	health and safety plan
HAZMAT	hazardous material
HAZWOPER	hazardous waste operations and emergency response

HSO	health and safety officer
IARC	International Agency for Research on Cancer
IH	industrial hygienist
INEEL	Idaho National Engineering and Environmental Laboratory
ISMS	integrated safety management system
JSA	job-safety analysis
LTS	long-term stewardship
MCP	management control procedure
MSDS	material safety data sheet
NFM	nuclear facility manager
NIOSH	National Institute of Occupational Safety and Health
NOC	not otherwise classified
NRR	noise reduction rating
NTP	National Toxicology Program
OMP	occupational medical program
OSHA	Occupational Safety and Health Administration
OU	operable unit
PDD	program description document
PE	project engineer
PEL	permissible exposure limit
PID	photoionization detector
PLN	plan
PM	project manager
POC	point of contact
POD	plan of the day
PPE	personal protective equipment

PRD	program requirements directive
RADCON	radiation control
RCRA	Resource Conservation and Recovery Act
RCT	radiological control technician
RWMC	Radioactive Waste Management Complex
SAD	site area director
SDA	Subsurface Disposal Area
SH&QA	safety, health, and quality assurance
STEL	short-term exposure limit
SWP	safe work permit
TLV	threshold-limit value
TPR	technical procedure
TRU	transuranic
TSA	Transuranic Storage Area
TWA	time-weighted average
VOC	volatile organic compound
VPP	voluntary protection program
WAG	waste area group
WBGT	wet bulb globe temperature
WCC	Warning Communications Center

Health and Safety Plan for the Clean/Close RWMC Project Routine Monitoring

1. INTRODUCTION

1.1 Purpose

This health and safety plan (HASP) establishes the requirements and controls that will be used to eliminate or minimize health and safety hazards associated with personnel conducting Waste Area Group (WAG) 7 routine monitoring activities for the RWMC Clean/Close Project at locations inside and outside the fence line of the Radioactive Waste Management Complex (RWMC) at the Idaho National Engineering and Environmental Laboratory (INEEL). These routine monitoring tasks are performed to monitor the groundwater quality and identify degradation of groundwater that may originate at the RWMC. Data from routine monitoring will be used to support several programs, including the remedial investigation and feasibility study, the active low-level waste disposal operation, INEEL over-site groups, long-term stewardship, and subsurface sciences at the RWMC.

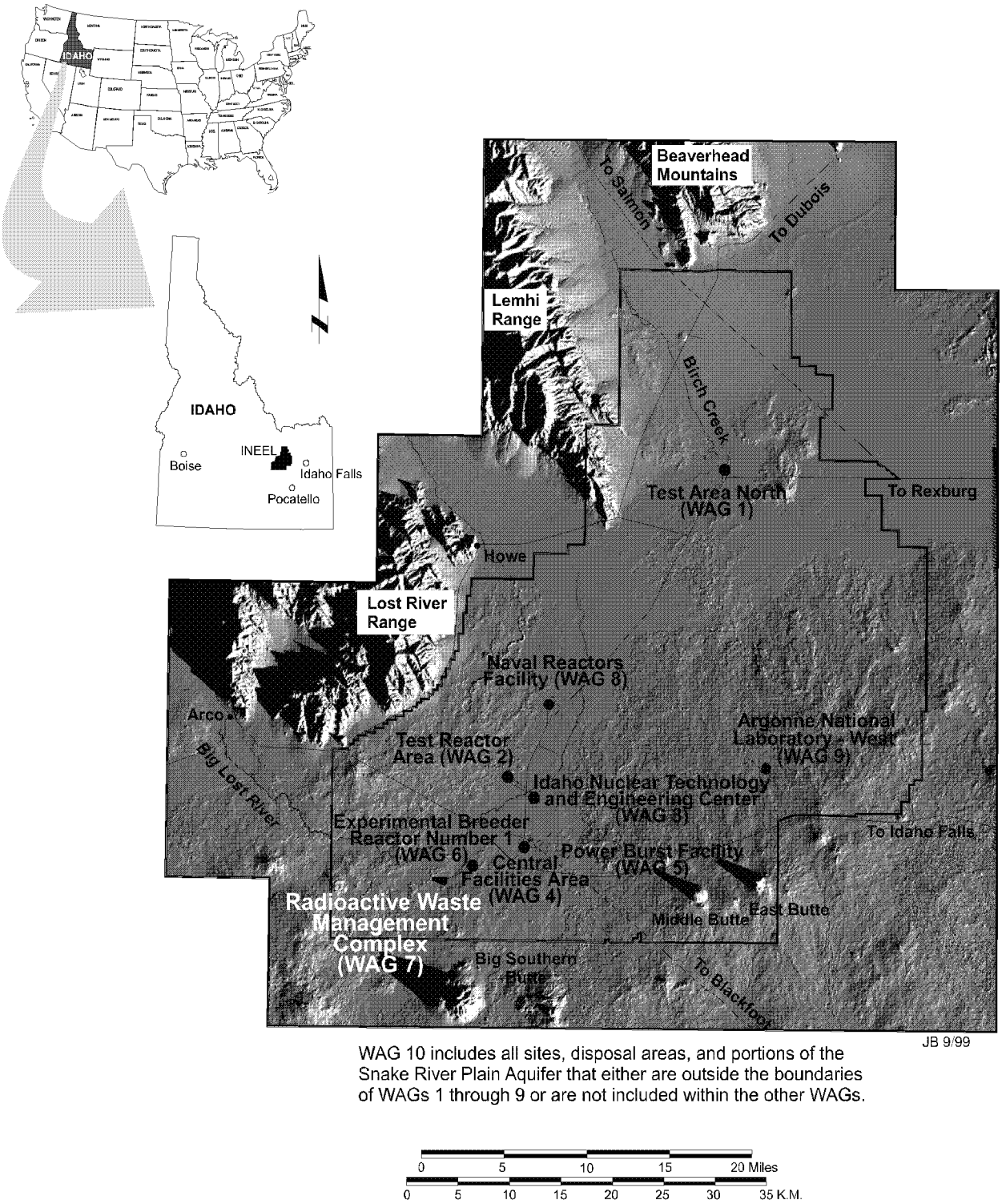
This HASP governs all tasks associated with the routine monitoring, including well and lysimeter monitoring, sampling, maintenance, abandonment, and associated subtasks. Employees of Bechtel BWXT Idaho, LLC (BBWI), subcontractors to BBWI, or other U.S. Department of Energy (DOE) laboratory personnel will perform all tasks. Personnel not normally assigned to work at the INEEL, such as representatives of DOE, the state of Idaho, Occupational Safety and Health Administration (OSHA), and the U.S. Environmental Protection Agency (EPA), are not considered field team members and fall under the definition of "occasional site workers," as stated in OSHA standard "Hazardous Waste Operations and Emergency Response (HAZWOPER)" (29 CFR 1910.120).

This HASP has been prepared to meet the requirements of the HAZWOPER (29 CFR 1910.120). Its preparation is consistent with information found in the National Institute of Occupational Safety and Health (NIOSH)/OSHA/United States Coast Guard/EPA *Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities* (NIOSH 1985), INEEL Companywide Manual 14A, *Safety and Health – Occupational Safety and Fire Protection,* INEEL Companywide Manual 14B, *Safety and Health – Occupational Health,* Companywide Manual, *Radiation Protection – INEEL Radiological Controls Manual* (PRD-183), and INEEL Companywide Manual 15B, *Radiation Protection Procedures.* Routine monitoring tasks have been screened in accordance with DOE Order 5480.21, "Unreviewed Safety Questions," and are categorically excluded or have been determined to fall within the RWMC safety authorization basis as outlined in the *Radioactive Waste Management Complex Safety Analysis Report* (INEEL 2000a).

This HASP will be reviewed and revised by the project health and safety officer (HSO) in conjunction with the field team leader (FTL), necessary environmental, safety, and health professionals, and Idaho Completion Project (ICP) routine monitoring personnel to ensure its effectiveness and suitability throughout the project.

1.2 Idaho National Engineering and Environmental Laboratory Site Description

The INEEL, formerly the National Reactor Testing Station, encompasses 2,305 km^2 (890 mi^2), and is located approximately 55 km (34 mi) west of Idaho Falls, Idaho (see Figure 1-1). The U.S. Atomic Energy Commission which was renamed the DOE, established the National Reactor Testing Station,



WAG 10 includes all sites, disposal areas, and portions of the Snake River Plain Aquifer that either are outside the boundaries of WAGs 1 through 9 or are not included within the other WAGs.

Figure 1-1. Location of the Radioactive Waste Management Complex at the Idaho National Engineering and Environmental Laboratory.

currently the INEEL, in 1949 as a site for building and testing a variety of nuclear facilities. The INEEL also has been the storage facility for transuranic (TRU) radionuclides and radioactive low-level waste since 1952. At present the INEEL supports the engineering and operations efforts of the DOE and other federal agencies in areas of nuclear safety research, reactor development, reactor operations and training, nuclear defense materials production, waste management technology development, and energy technology and conservation programs. The U.S. Department of Energy Idaho Operations Office (DOE-ID) has responsibility for the INEEL and designates authority to operate the INEEL to government contractors. The BBWI, current primary contractor for DOE-ID at the INEEL, provides managing and operating services to the majority of INEEL facilities.

1.2.1 Radioactive Waste Management Complex

The RWMC is located in the southwestern corner of the INEEL (as depicted in Figure 1-1) and occupies 174 acres (70 ha). The RWMC fence defines the facility boundaries. In 1952, the U.S. Atomic Energy Commission selected the RWMC as a waste disposal site for solid low-level radioactive waste. In addition to waste generated at the INEEL, waste from other DOE facilities are stored and disposed of at the RWMC.

The Subsurface Disposal Area (SDA) (shown in Figure 1-2) comprises all property from the center of the RWMC westward, and is surrounded by a soil berm and drainage channel. The site was initially established in July 1952 as the Nuclear Reactor Testing Station Burial Ground on 13 acres (5 ha). The facility was expanded incrementally over the years and from 1988 has covered 96.8 acres (39.2-ha). The SDA is a radioactive waste disposal site. Transuranic and low-level waste has been buried in pits, trenches, soil vaults, and one aboveground pad since 1952. The waste contains other nonradioactive hazardous materials such as mercury, beryllium, asbestos, zirconium fines, solidified acids and bases, solvents and degreasing agents, and sodium and potassium salts.

The Transuranic Storage Area (TSA) is a 56-acre (22.6-ha) facility located in the southern portion of the RWMC. The TSA was established in 1970 as an interim storage facility when subsurface disposal of waste containing TRU concentrations greater than 100 nCi/g in the SDA was discontinued. Operations at the TSA include waste segregation, examination, and certification in addition to interim storage.

The operations and administration area contains administrative offices, security and gatehouse operations, radiological control support, maintenance buildings, equipment storage, and miscellaneous support facilities. A more detailed summary of RWMC operations is provided in the *Interim Risk Assessment and Contaminant Screening for the Waste Area Group 7 Remedial Investigation* (Becker et al. 1998).

The current mission of the Clean/Close RWMC Project is to provide waste management for the present and future needs of the INEEL and of assigned DOE off-Site generators of low-level and TRU waste, and to retrieve, examine, and certify stored TRU waste for ultimate shipment to the DOE Waste Isolation Pilot Plant near Carlsbad, New Mexico.

1.3 Scope

As part of the ICP routine monitoring project, groundwater monitoring wells, lysimeters, and tensiometers located inside and outside the RWMC are being sampled on a periodic basis. As part of this project, groundwater and perched-water samples routinely will be collected from RWMC-area wells. The objectives of this investigation are to (1) monitor groundwater quality, (2) identify any degradation of groundwater quality that may originate from the RWMC subsurface, and (3) provide groundwater data

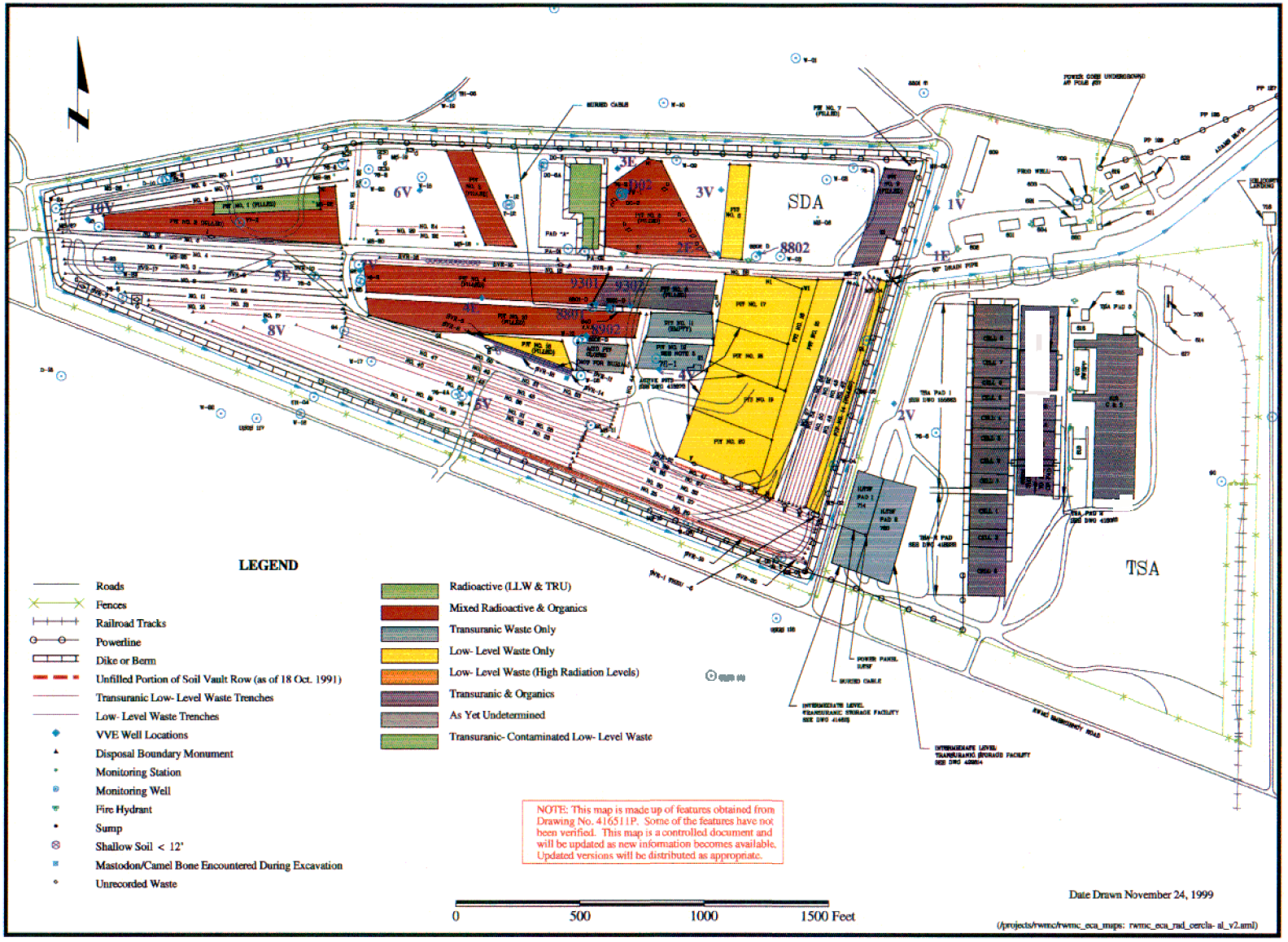


Figure 1-2. Subsurface Disposal Area at the Radioactive Waste Management Complex.

that will aid in characterizing the spatial extent of contamination via the groundwater pathways down gradient of the RWMC. These data will (1) aid in the understanding of fate and transport of contaminant migration from the RWMC, (2) help fill previously identified data gaps, and (3) support the selection of appropriate remedial alternatives.

The scope of this HASP covers the collection, preservation, and shipping of water samples; ground water well, perched water, lysimeters, and tensiometer operation and maintenance (all components including surface features); and the abandonment of wells, associated components, and systems. These tasks will be accomplished by ICP resources. Additionally, BBWI subcontract personnel may be used for specific tasks. Wells were constructed and installed during previous WAG 7 projects and generally follow the construction detailed in the *Statement of Work for Operable Unit 7-08 Monitoring and Extraction Well Installations* (INEEL 2001a). Well and lysimeter locations are shown on Figures 1-3 and 1-4. These figures do not show all locations, but present the areas where samples will be collected.

1.3.1 Site Preparation

All required documentation and equipment will be assembled at the sampling site (e.g., radio, fire extinguishers, personal protective equipment [PPE], and containers and sampling accessories) in accordance with applicable work controls. A designated work area will be established.

As required before sampling, equipment may require cleaning in accordance with Guide (GDE)-140, "Decontaminating Sampling Equipment," (except the dedicated submersible sampling pumps and dedicated sampling manifolds). The only equipment anticipated requiring decontamination for this project is the water-level recorder and the portable sampling manifold.

1.3.2 Groundwater Monitoring

Quarterly monitoring (or at a frequency deemed appropriate) of groundwater will take place at a location inside and outside the RWMC and consist of the collection of samples using dedicated and portable pumps, measurement of water levels and water quality parameters in the field, containerization and preservation of samples for analysis, and shipment of samples to an on-Site or off-Site laboratory.

1.3.2.1 Field Measurements. Field measurements will be conducted in conjunction with or as a separate operation at various well sites. The following paragraphs provide a brief description of these activities.

1.3.2.1.1 Depth-to-Water—Water levels will be measured at each well before purging. A post-sampling water level measurement is not required. Water level data will be used to determine hydraulic gradients and the direction of groundwater flow below RWMC. In lieu of an inline flow meter, flow rates will be determined manually using a 5-gal (19-L) graduated bucket and stopwatch as described in GDE-127, "Sampling Groundwater."

1.3.2.1.2 Tensiometers—Field measurement of installed well tensiometers will be conducted to measure the matric potential (pressure head) of a porous medium under unsaturated conditions, or pressure head if saturated conditions form. Matric potential is used to calculate hydraulic gradients, determine the direction of soil-water movement in the vadose zone, and to calculate the rate of flow given the hydraulic conductivity of the materials (determined from laboratory analysis of soil samples).

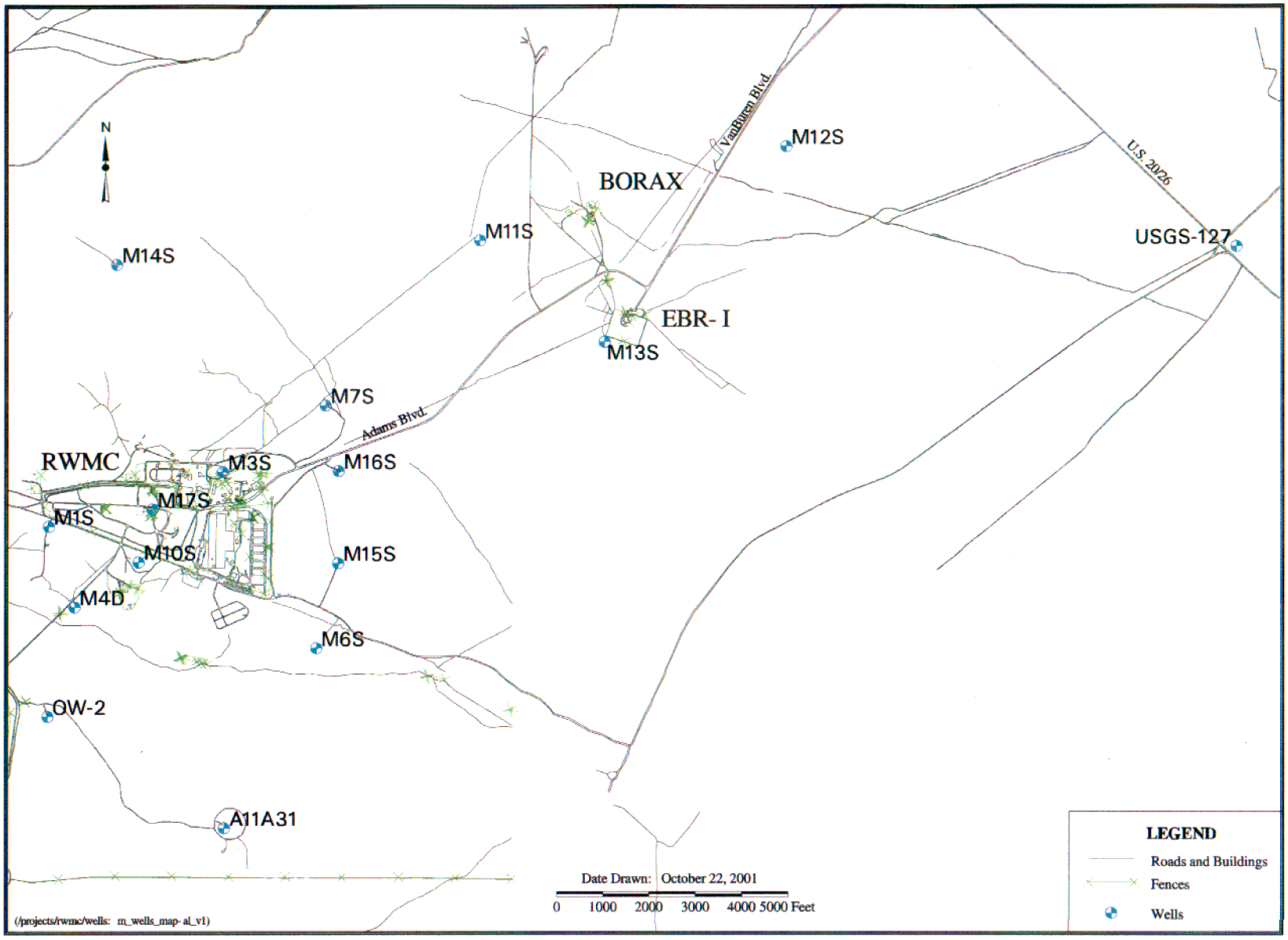


Figure 1-3. Location of Radioactive Waste Management Complex groundwater monitoring wells.

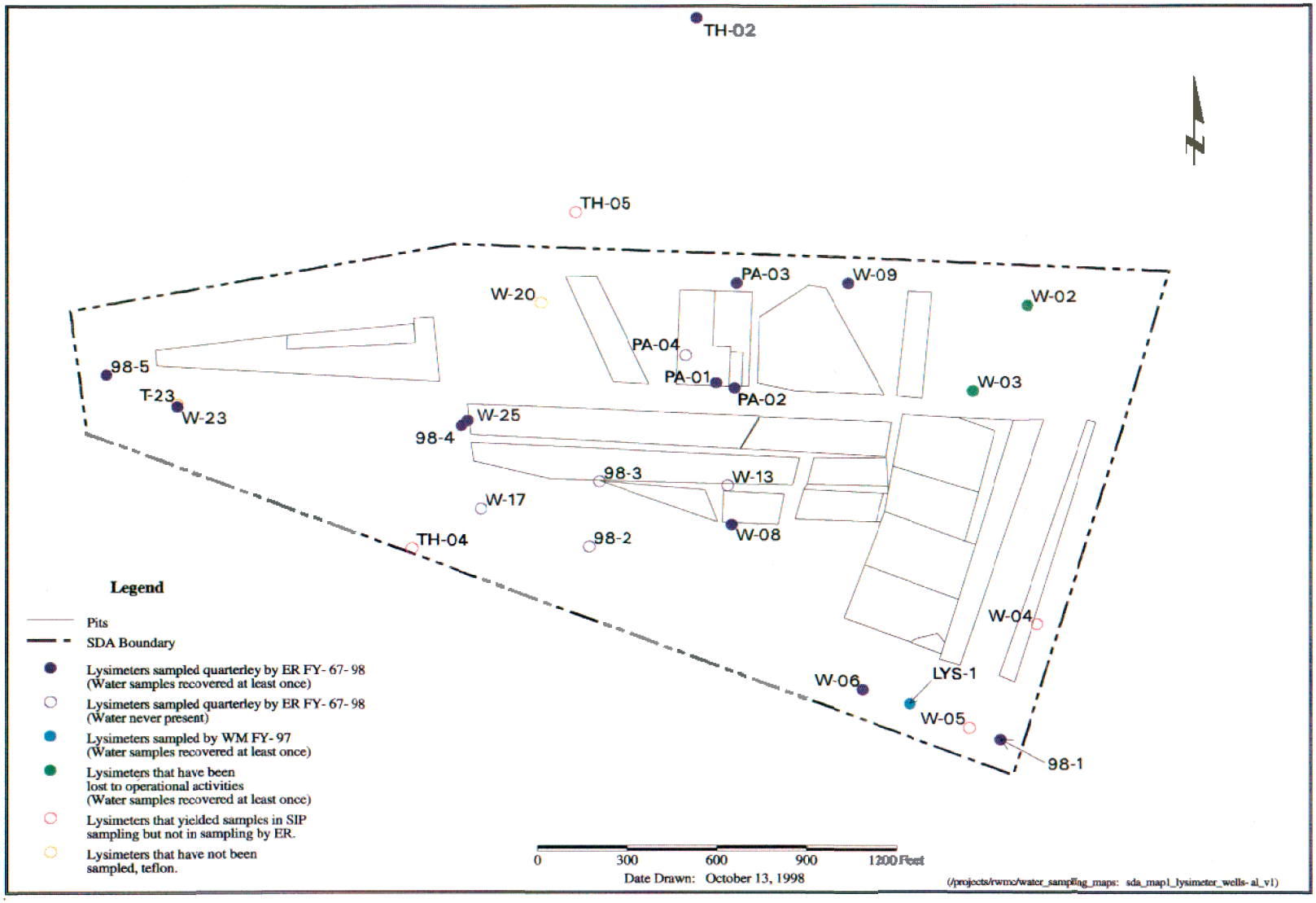


Figure 1-4. Location of Subsurface Disposal Area surficial sediment water sampling suction lysimeters.

When the tensiometer is placed in unsaturated soil, water in the tensiometer equilibrates with the soil water in the surrounding medium. During equilibration (which may require several days), water will be pulled from the tensiometer and a change in pressure head will occur in the tensiometer. The pressure transducer will measure the vacuum in the air-and-water column within the tensiometer (which is in equilibrium with the surrounding medium) to determine the matric potential of the surrounding medium.

The pressure transducer is connected to a datalogger using a wire lead where measurements are stored and downloaded periodically. The downloading does not require access to the tensiometer, but only to the datalogger.

1.3.2.2 Well Purging. Each of the RWMC-area groundwater monitoring wells has dedicated pumps and 6-in. (15-cm) stainless steel well casings. The pump inlets (actual sampling depth) were placed approximately 7 ft (2 m) above the bottom of each well screen. Purge volumes, which are based on the depth-to-water measurement and the bottom of the well casing, will be calculated using the formula in GDE-127.

Collection of purge water for wells located outside the RWMC is not required and may be discharged to the ground based on existing sampling and analysis data as stated in the *Sampling and Analysis Plan for Lysimeter and Perched Water Monitoring of Operable Unit 7-13/14* (Burgess 2000b). Purge water from Well M17S and other wells located inside the SDA will initially be containerized at the wellhead during sampling events until sampling results or other screening methods (e.g., drying and counting smears taken from water) demonstrate it can be discharged to the ground in accordance with MCP-425, "Radiological Release Surveys and the Control and Movement of Contaminated Materials."

During the purging operation a Hydrolab may be used to measure specific conductance, pH, dissolved oxygen, temperature, and flow rate of the purge water. When used, the Hydrolab or equivalent will be calibrated in accordance with the Hydrolab (1998) *User's Manual* or equivalent and in accordance with TPR-6539, "Calibration and Using the Hydrolab Datasonde 4 Water Quality Multiprobe," before sampling activities occur. Post-sampling calibration is designed to confirm the initial calibration and ensure that sensors are functioning properly. If there are temperature extremes the FTL may determine that calibration should be performed more frequently.

Initial readings for specific conductance, pH, dissolved oxygen, temperature, and flow rate will be collected just after purging begins and readings will be recorded at regular intervals thereafter. The flow rate will be noted in the sample logbook. All Hydrolab readings will be recorded on the well-purging data form in GDE-127, "Sampling Groundwater," Appendix B. The water parameters will provide a check on the stability of the water sampled over time.

Following purging and collection of field measurements, groundwater samples will be collected in accordance with GDE-127 and MCP-3480, "Environmental Instructions for Facilities, Processes, Materials and Equipment." Additional details for groundwater sampling are provided in the *Field Sampling Plan for Groundwater Monitoring of Operable Unit 7-13/14* (INEEL 2001b).

1.3.3 Lysimeter and Perched Water Sampling

The vadose zone-monitoring network at the SDA includes shallow and deep suction lysimeters. Wells equipped with lysimeters ranging from surface to the 240-ft (73-m) interbed will be sampled. Collection of liquid samples from unsaturated environments allows monitoring of possible contaminant movement through the vadose zone toward the aquifer. This is particularly needed to test the effectiveness of Pad A remedial actions. Lysimeters are currently used at the RWMC SDA to collect vadose zone pore water samples.

The lysimeter is a capped tube with a permeable ceramic cup at the bottom end. Soil water is drawn and collected through the ceramic cup. The ceramic cup is manufactured to a certain pore opening size to allow liquid entry. Lysimeter tasks will include applying a vacuum to the lysimeter to draw water into the cup followed by collection of this water 5 to 14 days later. Collection of the water sample is conducted by pressurizing the system with an inert gas (generally argon) in accordance with TPR-1641, "Collection of Vadose Zone Water Samples at the RWMC." The water is then forced to the surface where it is collected in the sample container. *The Sampling and Analysis Plan for Lysimeter and Perched Water Monitoring of Operable Unit 7-13/14* (Burgess 2000) contains additional details on the sampling methods.

The depth of perched water will be checked and verified using an electronic water-level indicator or a similar method in accordance with GDE-128. Perched water samples will then be collected by use of a baler or equivalent method, containerized and preserved (as required), and shipped to an on-Site or off-Site laboratory in accordance with GDE-140, "Sampling Groundwater," and MCP-3480.

1.3.4 Well, Lysimeter, and Tensiometer Maintenance and Abandonment

Existing wells, lysimeters, and tensiometers require periodic maintenance and will be abandoned where it is deemed the location no longer serves a useful purpose. The following paragraphs provide a general description of these activities. Additional well, lysimeter or tensiometer operation and maintenance tasks may be required during the performance of routine monitoring and the list that follows is not intended to be all-inclusive. These tasks will be performed in accordance with existing TPRs or TPRs generated for specific activities or a work order may be written in accordance with STD-101, "Integrated Work Control Processes."

This HASP may require revision, or additional work control documents used to supplement this HASP (e.g., job-safety analysis [JSA], safe work permit [SWP], and work order change) may be used to address hazard identification and control of such activities.

1.3.4.1 Well Surface Completion Configuration Maintenance or Replacement. Well surface completion components such as wellheads, pads, posts, labeling, and related surface structures will require maintenance and replacement to maintain the well operability. These tasks will be completed using existing sampling personnel and supplemented by specific craft personnel and subcontractors based on the nature and complexity of the activity.

1.3.4.2 Internal Well Component Maintenance or Replacement. Internal well components such as pumps, lines, tensiometer and lysimeter instruments and components periodically require maintenance or replacement to maintain operability. These tasks will be completed using existing sampling personnel and supplemented by specific crafts personnel and subcontractors based on the nature and complexity of the activity.

1.3.4.3 Well Abandonment or Decommissioning of Individual Components. Wells that are damaged, deemed no longer needed based on data acquisition requirements, or have individual components that require decommissioning will be abandoned or decommissioned to meet ICP operational needs. The specific requirements for abandonment or decommissioning will be described in an appropriate work control document. These tasks will be completed using existing sampling personnel and supplemented by specific craft personnel and subcontractors based on the nature and complexity of the activity.

1.4 Additional Activities

Ancillary activities that may be performed in conjunction with routine monitoring activities include the following:

- Prepare or revise existing National Environmental Policy Act documentation including an environmental checklist (as required)
- Prepare work control documentation and integrated planning sheets in accordance with MCP-3562 or STD-101
- Complete a hazards screening checklist and job walk-downs
- Prepare a job safety analysis
- Submit document action requests for changes or revisions to existing project plan or document.

2. KEY SITE PERSONNEL RESPONSIBILITIES

The organizational structure for this project reflects the resources and expertise required to perform the work while minimizing risks to worker health and safety, the environment, and the general public. Key project positions at the Idaho Completion Project (ICP), lines of responsibility and communication, and the project structure are shown on the organization chart for the site (see Figure 2-1). This organization chart is not all-inclusive, but shows the structure for resources assigned to complete routine monitoring tasks. The following subsections outline the responsibilities of key site personnel.

2.1 Idaho Completion Project

2.1.1 Clean/Close RWMC Project Director

The Clean/Close RWMC Project Director has the ultimate responsibility for the technical quality of all projects, for maintaining a safe environment, and for the safety and health of all personnel during field activities performed by or for the RWMC Clean/Close Project. The RWMC Clean/Close Project Director provides technical coordination and interfaces with the DOE-ID. The RWMC Clean/Close Project Director ensures the following:

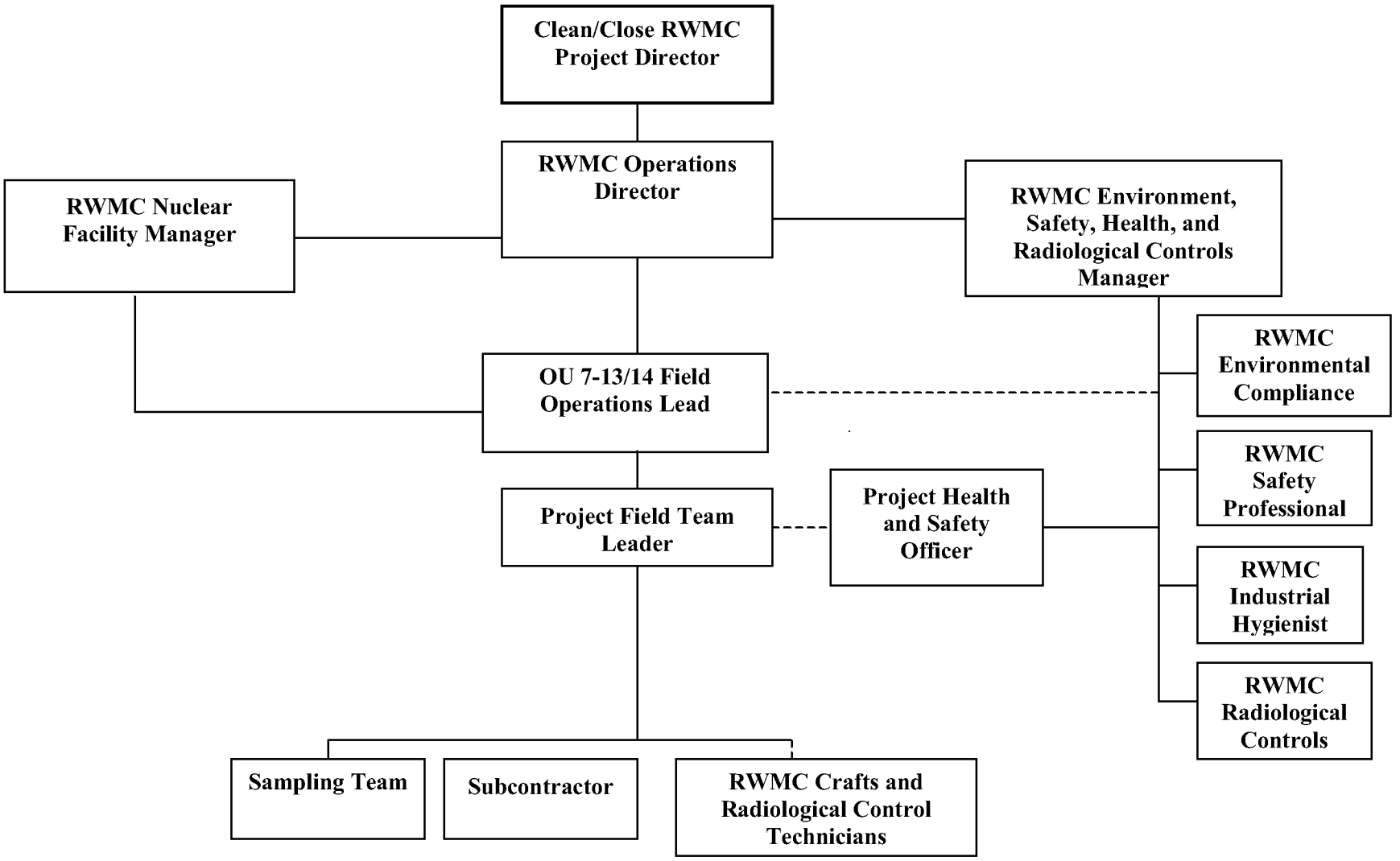
- Project and program activities are conducted in accordance with all applicable federal, state, local, and company requirements and agreements
- Program budgets and schedules are approved and monitored to be within budgetary guidelines
- Personnel, equipment, subcontractors, and services are available
- Direction is provided for the development of tasks, evaluation of findings, development of conclusions and recommendations, and production of reports.

2.1.2 RWMC Environment, Safety, Health, and Radiological Controls Manager

The RWMC environment, safety, health, and radiological controls (ES&H) manager, or designee, is responsible to manage ES&H resources to ensure that ES&H programs, policies, standards, procedures, and mandatory requirements are planned, scheduled, implemented, and executed in the day-to-day operations. The manager directs the ES&H compliance accomplishments of all activities by providing technical and administrative direction to subordinate staff, and through coordination with related functional entities. The ES&H manager reports directly to the RWMC Operations Director. Under the direction of the RWMC Operations, the ES&H manager represents the project in all ES&H matters. This includes responsibility for project ES&H management compliance and oversight for all Comprehensive Environmental, Response, Compensation and Liability Act (CERCLA) (42 USC § 9601) and decontamination, dismantlement, and decommissioning operations planned and conducted at WAG 7.

The ES&H manager is responsible for the management of the following matrixed or facility-provided technical disciplines and implementation of the programs related to these disciplines:

- Radiological controls personnel (RWMC support)
- Environmental support personnel



Line of Authority _____

Line of Communication ----------

Figure 2-1. Clean/Close RWMC routine monitoring project organization chart.

- Industrial safety personnel
- Fire protection personnel
- Industrial hygiene personnel
- Emergency preparedness personnel (RWMC support).

2.1.3 RWMC Operations Director

The RWMC Operations Director will ensure that all activities conducted during this project comply with INEEL MCPs and program requirement directives (PRDs), all applicable OSHA, EPA, DOE, U.S. Department of Transportation, and State of Idaho requirements, and that tasks comply with this HASP. The RWMC Operations Director is responsible for the overall work scope, schedule, and budget for this project including the following:

- Ensuring all work processes and work packages are performed in the RWMC area
- Establishing and executing a monthly, weekly, and daily operating plan for the RWMC area
- Executing the SH&QA program for the RWMC area
- Executing ISMS and voluntary protection program (VPP) for the RWMC area
- Executing that portion of the voluntary compliance order that pertains to the RWMC area
- Correcting the root cause functions of accident investigations in the RWMC area
- Correcting the root cause functions of the voluntary compliance order for the RWMC area
- Authorizing startup for new or restart of activities within the RWMC area of jurisdiction.

2.1.4 RWMC Nuclear Facility Manager

The RWMC nuclear facility manager (NFM) is responsible for all operational activities at the RWMC nuclear facility and must be cognizant of work being conducted in the facility (including the cold test pits). The operations manager is responsible for evaluating all activities with respect to the RWMC safety authorization, and for approving all work packages and JSAs. The RWMC NFM and operations manager will be kept informed of the project status through the RWMC shift supervisor and the RWMC POD for activities performed at the RWMC.

All WAG 7 routine monitoring activities will be scheduled through the RWMC as well as through work packages and procedures and opened daily at the RWMC shift desk, as required. The FTL (or designee) will obtain RWMC shift supervisor authorization (i.e., signature on work order or technical procedure) to initiate daily activities within the RWMC jurisdiction. The shift supervisor may serve as an advisor to task-site personnel with regard to RWMC operations.

2.1.5 Clean/Close RWMC (WAG-7) Project Engineer

The WAG 7 project engineer (PE) is responsible for the overall technical quality of the WAG 7 projects included in this HASP as well as for the technical content and quality of project deliverables. Additional responsibilities of the PE include the following:

- Providing project-specific point of contact (POC) services for the recruitment and staffing of projects for the scientific, technical, and engineering staff

- Being cognizant and staying ahead of technical project issues and focusing on planning, design, and execution of tasks to ensure compliance with environmental regulations, permits, INEEL policies, and DOE orders
- Maintaining close coordination with other key project POCs to maintain project schedules and milestones, and to develop action plans (as required) that meet project goals
- Coordinating and scheduling formal and informal reviews of all project-produced documentation to ensure scientific, technical, and engineering excellence in the delivered product
- Coordinating and planning appropriate mitigation strategies to minimize long-term impacts of the tasks conducted
- Being responsible for technical oversight and direction in development and acceptance of products and deliverables
- Identifying scientific, technical, and engineering issues that affect the cost effectiveness, constructability, and operation or maintenance of systems developed for deployment.

2.1.6 OU 7-13/14 Field Operations Lead

The OU 7-13/14 Field Operations Lead is responsible for the field management of the project. Responsibilities include the following:

- Ensuring field implementation of the HASP, TPRs, JSAs, and company level documents
- Ensuring program budgets and schedules are approved and monitored to be within budgetary guidelines
- Providing direction for the development of project tasks, evaluation of findings, development of conclusions and recommendations, and production of reports.

2.1.7 Clean/Close RWMC Environmental Compliance

The assigned environmental compliance coordinator oversees, monitors, and advises the WAG 7 manager or FTL performing site activities about environmental issues and concerns by ensuring compliance with DOE orders, EPA regulations, and other regulations concerning the affects of Site activities on the environment. The project environmental compliance coordinator provides or arranges for environmental support services for hazardous waste storage, transport, and disposal through Waste Generator Services.

2.1.8 Clean/Close RWMC Quality Engineer

The assigned quality engineer provides guidance on the project quality issues when requested. The quality engineer may periodically observe task site activities and verify that WAG 7 site operations comply with the quality requirements pertaining to those activities. The quality engineer will prepare inspection criteria for materials procured in support of the project.

2.2 Task Site Responsibilities

2.2.1 Field Team Leader

The FTL has responsibility for the safe and successful completion of the project tasks. The FTL will manage routine monitoring operations and execute the applicable field sampling plans, technical procedures, and other project-specific documents. Generally, the FTL will also serve as the sampling FTL

for all routine monitoring tasks and may also serve as the HSO based on the qualifications and complexity of the activities. The FTL enforces site control, documents activities, and conducts (or may delegate to an appropriately trained alternate) the daily plan-of-the-day (POD) meeting or prejob briefing at the start of the shift. Health and safety issues must be brought to the attention of the FTL. The FTL will report project status on a regular basis to the LTS operations and integrated groundwater leads. Additional responsibilities include, but are not limited to the following:

- Ensuring that all WAG 7 routine monitoring field activities are conducted in compliance with the integrated safety management system (ISMS) requirements and associated work orders or procedures
- Ensuring field team personnel comply with RWMC facility and operations requirements
- Obtaining and coordinating all resources needed to implement the WAG 7 routine monitoring fieldwork including equipment, labor, and administrative and technical permits and approvals.
- Coordinating with the WAG 7—RWMC interface to schedule routine monitoring tasks through the RWMC POD
- Directing subcontract personnel supporting routine monitoring tasks at the WAG 7 project sites.

If the FTL leaves the site, an alternate individual will be appointed and communicated to all field personnel. Persons acting as FTL must meet all the FTL training requirements outlined in Section 4.

2.2.2 Sampling Team

The sampling team will consist of the FTL and support personnel and is responsible for the collection, preservation, and shipping of all routine monitoring samples in accordance with the applicable field sampling plan and technical procedures. The industrial hygienist (IH) and safety professional will support the sampling team, as required, based on site-specific hazards and task evolutions. The sampling team will be led by a sampling FTL who also may perform other roles during the project.

2.2.3 Specialty Subcontractors

Specialty subcontractors may be used to support certain routine monitoring maintenance, repair, and abandonment tasks. A subcontractor lead will serve as the single POC for all subcontractor safety issues at the site and report to the FTL for all technical direction and interface issues at the project site. Subcontractor personnel will report any health and safety issues that arise to the FTL or HSO and may stop work if an unsafe condition exists. The subcontractor lead will also be asked to provide hazard and mitigation information regarding the nature of their equipment or operations during the POD meeting and may participate in job-site hazard walkdowns where appropriate.

2.2.4 Field Team Members

All routine monitoring field team members, including RWMC and subcontractor personnel assigned to operational support roles, will understand and comply with the requirements of this HASP. The FTL (or designee) will conduct a formal prejob briefing or POD at the start of each shift. During the POD briefing all daily tasks, associated hazards, hazard mitigation (i.e., engineering and administrative controls, required PPE, and work control documents), and emergency conditions and actions will be discussed. Input from the project HSO, IH, and safety personnel (where assigned) will be provided to clarify task health and safety requirements as deemed appropriate. All project personnel are encouraged to ask questions regarding site tasks and provide suggestions on ways to perform required tasks in a more safe and effective manner based on the lessons learned from previous routine monitoring activities.

Once at the routine monitoring project site, personnel are responsible for identifying any potentially unsafe situations or conditions to the FTL or HSO for corrective action.

Note: If it is perceived that an unsafe condition poses an imminent danger, site personnel are authorized to stop work immediately and notify the FTL or HSO of the unsafe condition.

2.2.5 Nonfield Team Members

All persons who may be at a routine monitoring site during operations and are not part of the field team (e.g., surveyor or others not assigned in an operational support role) are considered nonfield team members as defined by this HASP. A person will be considered onsite when they are present in the designated work area (DWA) boundary (described in detail in Section 7).

Nonfield team members are considered occasional site workers in accordance with the HAZWOPER (29 CFR 1910.120) and must receive site-specific HASP training before entering beyond the DWA of the project site. They must also meet all required training for the site area they need to access, based on the routine monitoring activities taking place. Also, a site supervisor (e.g., HSO or FTL) will supervise nonfield team personnel who have not completed their 3 days of supervised field experience in accordance with the HAZWOPER.

2.2.6 Visitors

All visitors with official business at a routine monitoring project site (including INEEL personnel, representatives of DOE, and state or federal regulatory agencies) may only proceed into the DWA during operational activities after meeting the following requirements:

Note: Access to well locations at times when routine monitoring tasks are not being conducted will only require a general SDA, or applicable facility, hazards list and emergency response actions briefing.

- Receiving site-specific HASP training or hazard briefing based on specific tasks taking place
- Signing a HASP training roster and providing proof of meeting all training requirements specified in Section 4 (or required access training for the area to be visited when routine monitoring tasks are not being conducted)
- Signing applicable job-safety analysis training rosters for the particular operation or area(s) to be accessed
- Providing objective evidence of PPE training and wearing the appropriate PPE for the area of the site accessed (29 CFR 1910.132).

A fully trained task-site representative (e.g., FTL or HSO [or a designated alternate]) will escort visitors when entering the DWA of the project site, as site conditions warrant, and as deemed appropriate by the FTL.

Note: Visitors will not be allowed into controlled work areas during certain maintenance tasks (e.g., hoisting and rigging of well pumps) to minimize risks to visitors. The determination as to any visitor's need for access into the controlled work area will be made by the FTL in consultation with the HSO and safety professional as appropriate.

A casual visitor to the task site is a person who does not have a specific task to perform or other official business to conduct at the project site. **Casual visitors are not permitted on any project site.**

2.2.7 Health and Safety Officer

The HSO is the person assigned to the task site who serves as the primary contact for all health and safety issues. The HSO advises the FTL on all aspects of health and safety and is authorized to stop work at the task site if any operation threatens worker or public health or safety. The HSO is authorized to verify compliance to the HASP, conduct inspections and self-assessments, require and monitor corrective actions, and monitor decontamination procedures as appropriate. The ES&H and radcon professionals at the task site (i.e., safety professional, IH, environmental coordinator, and RCTs) support the HSO.

Persons assigned as the HSO or alternate HSO must be qualified (in accordance with the OSHA definition) to recognize and evaluate hazards, and will be given the authority to take or direct actions to ensure that workers are protected. While the HSO may also be the IH, safety professional, or in some cases the FTL (depending on the hazards and complexity of the activity involved), other task-site responsibilities of the HSO must not interfere with the primary role of the HSO at the task site.

If it is necessary for the HSO to leave the site, an alternate individual will be appointed by the HSO to fulfill this role and that person's identity will be communicated to project personnel.

2.2.8 Industrial Hygienist

The assigned IH is the primary source for information regarding exposure assessments for the routine monitoring project chemical, physical, and biological hazards at the site. The IH assesses the potential for worker exposures to hazardous agents in accordance with Companywide Safety and Health Manuals 14A and 14B, MCPs, and accepted industry industrial hygiene practices and protocol. By participating in project planning, the IH assesses and recommends appropriate hazard controls for the protection of site personnel, operates and maintains airborne sampling and monitoring equipment, reviews for effectiveness and recommends and assesses the use of PPE required in this HASP (recommending changes as appropriate).

Personnel showing health effects (i.e., signs and symptoms) resulting from possible exposure to hazardous agents will be referred to an occupational medical program (OMP) physician by the IH, supervisor, or HSO. The IH may have other duties at the site as specified in other sections of this HASP or in PRDs or MCPs.

Based on historical sampling results and limited exposure potential for personnel conducting routine monitoring tasks, minimal IH support is anticipated.

2.2.9 Safety Professional

The assigned INEEL safety professional reviews work packages, observes site activity, assesses compliance with the INEEL Safety and Health Manuals, advises the FTL on required safety equipment, and recommends solutions to safety issues and concerns that arise at the task site. The safety professional may conduct periodic inspections in accordance with MCP-3449, "Safety and Health Inspections," and have other duties at the task site as specified in other sections of this HASP or in PRDs and MCPs. Copies of any safety and health inspections will be kept in the field file.

2.2.10 Radiological Control Technician

The assigned radiological control technician (RCT) is the primary source for information and guidance on radiological hazards that may be encountered during project tasks. Responsibilities of the RCT include the following:

- Performing radiological surveying of the site, equipment, and samples

- Providing guidance for radioactive decontamination of equipment and personnel
- Accompanying the affected personnel to the nearest INEEL medical facility for evaluation if significant radionuclide contamination occurs.

The RCT must notify the FTL and HSO of any radiological occurrence that must be reported, as directed by the Companywide Manual 15A, *Radiation Protection—INEEL Radiological Control Manual*. The RCT may have other duties at the site as specified in other sections of this HASP or in INEEL PRDs or MCPs

2.2.11 Fire Protection Engineer

A fire protection engineer is available to provide technical guidance to routine monitoring personnel about all fire protection issues, and may be assigned to review the work packages and conduct preoperational and operational fire hazard assessments. The INEEL fire department may also need to be advised of fuel storage areas (if required) and will provide authorization for all hot work operations performed at the project site during times of high-to-extreme fire danger. The RWMC fire protection engineer is required to sign all safe work permits used as hot work permits within the jurisdiction of the RWMC site area director (SAD).

3. RECORD KEEPING REQUIREMENTS

3.1 Industrial Hygiene and Radiological Monitoring Records

When IH support is required, the IH will record airborne monitoring and sampling data (both area and personal) collected for exposure assessments in the INEEL hazards assessment and sampling system. All monitoring and sampling equipment will be maintained and calibrated according to INEEL procedures and the manufacturer's specifications. Industrial hygiene airborne monitoring and sampling exposure assessment data are treated as limited access information and maintained by the IH in accordance with to INEEL Companywide Manual 14B, *Safety and Health—Occupational Health* procedures.

The RCT maintains a logbook of radiological monitoring, daily project operational activities, and instrument calibrations. Radiological monitoring records are maintained in accordance with INEEL Companywide Manual 15B, *Radiation Protection Procedures*.

Project personnel or their representatives have a right to the monitoring and sampling data (both area and personal) of both the IH and the RCT. Results from monitoring data will also be communicated to all field personnel during daily POD meetings and formal prejob briefings in accordance with MCP-3003, "Performing Pre-Job Briefings and Post-Job Reviews."

3.2 Field Team Leader and Sampling Logbooks

The FTL will keep a record of daily task-site events in the FTL logbook. The FTL will also maintain a logbook of all sampling activities and samples collected. All logbooks must be obtained from Administrative Record and Document Control (ARDC). Completed sample logbooks are submitted to the Sample Management Office (SMO) within 6 weeks of project completion. Logbooks will be maintained in accordance with MCP-1194, "Logbooks for ER and D&D&D Projects."

3.3 Site Attendance Record

If required to be maintained separately, the site attendance record will be used to keep a record of all personnel (i.e., field team members and nonfield team members) onsite each day, and to assist the area warden with conducting personnel accountability should an evacuation take place (see Section 11 for emergency evacuation conditions). Personnel will only be required to sign in and out of the attendance record once each day. The FTL is responsible for maintaining the site attendance record and for ensuring that all personnel on the project site sign in (if required).

3.4 Administrative Record and Document Control Office

The ARDC will organize and maintain data and reports generated by ICP Project field activities. The ARDC maintains a supply of all controlled documents and provides a documented system for the control and release of controlled documents, reports, and records. Copies of the management plans for the Project, this HASP, PLN-694, the Quality Assurance Project Plan (DOE-ID 2000), and other documents pertaining to this work are maintained in the project file by the ARDC.

4. PERSONNEL TRAINING

All INEEL personnel will receive training, as specified in the HAZWOPER (29 CFR 1910.120), INEEL Companywide Manuals 14A and 14B, INEEL Companywide Manual 12, *Training and Qualifications,* and MCP-1764, "RWMC Operating Requirements," as applicable. Table 4-1 summarizes the project-specific training requirements for personnel based on location of the routine monitoring well, responsibilities at the project site, potential hazards, and other training requirements.

Changes (i.e., addition or eliminating) to the training requirements listed in Table 4-1 may be necessary based on changing field conditions. Any changes to the requirements listed in Table 4-1 must be approved by the HSO with concurrence from the FTL, PM, RCT, and IH (as applicable). These changes should be based on site-specific conditions and will generally be considered a minor change to the HASP, as defined by Form 412.11, "Document Management Control Systems (DMCS) Document Action Request (DAR)," instructions as they are administrative in nature.

4.1 General Training

All project personnel are responsible for meeting required training (including applicable refresher training). Evidence of training will be maintained at the WAG 7 field trailer or electronically (e.g., Training Records and Information Network [TRAIN] [INEEL 2001c]). Non-field team personnel and visitors must be able to provide evidence of meeting required training for the area of the site they wish to access before being allowed into project areas.

Examples of acceptable written training documents include (1) a 40-Hour OSHA HAZWOPER Card, (2) a respirator authorization card, (3) a medic/first aid training card, or (4) a copy of an individual's, or department's, (INEEL only) TRAIN system printout demonstrating completion of training. Upon validation, a copy of the training certificate issued by an approved non-INEEL training vender or institution is also acceptable proof of training. As a minimum, all personnel who access routine monitoring locations are required to wear PPE and must provide objective evidence of having completed INEEL computer-based PPE training (00TRN288) or equivalent, in accordance with 29 CFR 1910.132, "Personal Protective Equipment."

4.2 Project-Specific Training

Before beginning work at routine monitoring project sites, project-specific HASP training will be conducted by the HSO (or designee). This training will consist of a complete review of a controlled copy of the project HASP and attachments, applicable JSAs, SWPs (if required), work orders, and other applicable work control and authorization documents with time for discussion and questions. Project-specific training can be conducted in conjunction with or separately from the required formal prejob briefing (MCP-3003).

At the time of project-specific HASP training, personnel training records will be checked and verified to be current and complete for all the training requirements shown in Table 4-1. Once the HSO (or designee) has completed site-specific training, personnel will sign Form 361.25, "Group Read and Sign Training Roster," or equivalent, indicating that they have received this training, understand the project tasks and associated hazards and mitigations, and agree to follow all HASP and other applicable work control and safety requirements. Form 361.47 (or equivalent) training forms are available on the INEEL Intranet under "Forms."

Table 4-1. Required Waste Area Group 7 routine monitoring project-specific project training for site personnel.

Training	Field Team Leader, Health and Safety Officer, and Samplers	Other Field Team Members	Access into the Designated or Controlled Work Area	Access to Areas Outside Designated or Controlled Work Area
40-hour HAZWOPER[a] - operations	Yes	b	b	
24-hour HAZWOPER[a] - operations		b	b	
Project-specific HASP training[c]	Yes	Yes	Yes	
Rad Worker I or II[d]	Yes	Yes	Yes	Yes
RWMC access training	Yes	Yes	e	e
Fire extinguisher training (or equivalent)	f	f		
CPR, medic first aid	f	f		
Respirator training (contingency only)	g	g		
Site-access training (blue or orange card)	Yes	Yes	Yes (or h)	Yes (or h)

Note: Shaded fields indicate specific training is not required or applicable

a. Includes 8-hour HAZWOPER refresher training as applicable, and supervised field experience as follows: 40 hour HAZWOPER = 24-hour supervised field experience, 24-hour HAZWOPER = 8-hour supervised field experience.

b. 40-hour or 24-hour HAZWOPER training requirement will be determined by the HSO based on the nature of the routine monitoring tasks and potential for exposure to contaminants or safety hazards.

c. Includes project-specific hazard communication, site-access and security, decontamination and emergency response actions, as required by 29 CFR 1910.120(e).

d. Radiation Worker I or II qualification is required for all activities inside the SDA, and as required per RWP for other activites outside the SDA boundary.

e. Required for unescorted access in SDA or may be escorted. Not required for areas outside RWMC facility.

f. At least one trained person onsite when field team is working; HSO will determine appropriate number of personnel requiring training.

g. Only required if entering area requiring respiratory protection (e.g., action levels exceeded, and industrial hygiene sampling shows respirators required).

h. Escorted within the RWMC. Not required for areas outside the RWMC facility.

CPR = cardiopulmonary resuscitation FTL = Field Team Leader HASP = health and safety plan HAZWOPER = 29 CFR 1910-120
HSO = health and safety officer RWMC = Radioactive Waste Management Complex SDA = Subsurface Disposal Area

A trained HAZWOPER 8-hour supervisor (FTL or other person trained by a HAZWOPER supervisor) will monitor each newly 24-hour or 40-hour trained worker's performance to meet the 1 or 3 days of supervised field experience, respectively, in accordance with 29 CFR 1910.120(e). Following the supervised field experience period, the supervisor will complete Form 361.47, "HAZWOPER Supervised Field Experience Verification," or equivalent to document the supervised field experience.

Note 1: Supervised field experience is only required if personnel have not previously completed this training at another CERCLA site (documented), or they are upgrading from 24- to 40-hour HAZWOPER training. A copy must be kept at the project site as evidence of training or be available electronically.

Note 2: Completed training project forms (Form 361.47, or equivalent) must be submitted to the ER training coordinator for inclusion in the TRAIN system within 5 working days of completion.

4.3 Daily Plan-of-the-Day Briefing and Lessons Learned

The FTL or designee will conduct a daily POD meeting. During this meeting, daily tasks are to be outlined; hazards identified; hazard controls, mitigation, and work zones established; PPE requirements discussed; and employees' questions answered. At the completion of this meeting, any new work control documents will be read and signed (e.g., SWPs and JSAs).

Particular emphasis will be placed on lessons learned from the previous day's activities and how tasks can be completed in the safest, most efficient manner. All personnel will be asked to contribute ideas to enhance worker safety and mitigate potential exposures at the project sites. This POD will be conducted as an informal meeting and the only required record will be to document the completion of the POD in the FTL logbook.

5. OCCUPATIONAL MEDICAL SURVEILLANCE PROGRAM

Task-site personnel will participate in the INEEL OMP as required by DOE Order 5480.8a, "Contractor Occupational Medical Program," and OSHA HAZWOPER (29 CFR 1910.120). Medical surveillance examinations will be provided before assignment, annually, and after termination of HAZWOPER duties or employment. This includes:

- Personnel who are or may be exposed to hazardous substances at or above the OSHA permissible exposure limit (PEL), or published exposure limits, without regard to respirator use for 30 or more days per year

- All employees who are injured, become ill, or develop signs or symptoms because of possible overexposure involving hazardous substances or health hazards from an emergency response or hazardous waste operation

- All employees who wear a respirator for 30 days or more a year or as required by 29 CFR 1910.134, "Respiratory Protection."

Personnel who wear a respirator in performance of their job, or who are required to take respirator training to perform their duties under this plan, must participate in the medical evaluation program for respirator use at least annually, as required by 29 CFR 1910.134.

A single copy of the routine monitoring project HASP, the job-hazard analysis requirements, required PPE, confined space entry (as applicable), and other exposure-related information will be made available upon request to the OMP physician (and subcontractor physicians) conducting medical surveillance for employees participating in this project. Exposure monitoring results and hazard information furnished to the OMP physician must be supplemented or updated annually as long as the employee is required to maintain a hazardous waste or material employee medical clearance.

The OMP physician will evaluate the physical ability of an employee to perform the work assigned, as identified in the site HASP or other job-related documentation. A documented medical clearance (e.g., physician's written opinion) will be provided to the employee and line management stating whether the employee has any detected medical condition that would place him or her at increased risk of material health impairment from work in hazardous waste operations, emergency response operations, respirator use areas, or confined space entry areas (as applicable). The physician may impose restrictions on the employee by limiting the amount and type of work performed. The OMP responsibilities with regard to personnel assigned to hazardous waste site activities include but are not limited to the following:

- Providing current comprehensive medical examinations (as determined by the examining physician) at an INEEL medical facility for full-time personnel

- Obtaining records or reports from employee's private physicians as required by the OMP director

- Performing a medical evaluation on return-to-work cases following an absence in excess of 1 work week (40 consecutive work hours) resulting from illness or injury

- Conducting a medical evaluation in the event that management personnel question the ability of an employee to work, or if an employee questions his or her own ability to work.

The attending physician will evaluate all information provided such as medical questionnaires, physical exam findings, blood chemistry and urinalysis results, preexisting medical conditions, nature of work to be performed, actual and potential hazards and exposures, and other factors deemed appropriate by the physician for determining the following for each employee:

- Ability to perform relevant occupational tasks
- Ability to use respiratory protection
- Ability to work in other PPE and heat- or cold-stress environments
- Requirements for entry into substance-specific medical surveillance programs.

If the OMP does not have sufficient information to complete a medical evaluation before respirator training, the employee's supervisor will be notified. The employee will not be permitted to fit test until the needed information is provided and any additional examination or testing is completed.

5.1 Subcontractor Workers

As required, subcontractor project personnel will participate in a subcontractor medical surveillance program that satisfies the HAZWOPER (29 CFR 1910.120) requirements. This program must make medical examinations available before assignment, annually, and after termination of hazardous waste duties. The physician's written opinion, as defined by 29 CFR 1910.120 (or equivalent), will serve as documentation that subcontractor personnel are fit for duty.

Medical data from the subcontractor employee's private physician, collected pursuant to hazardous material worker qualification, will be made available to the INEEL OMP physicians upon request.

5.2 Injuries on the Site

It is INEEL policy that an OMP physician will examine all injured personnel if (1) an employee is injured on the job, (2) an employee is experiencing signs and symptoms consistent with exposure to a hazardous material, or (3) there is reason to believe that an employee has been exposed to toxic substances or physical or radiological agents in excess of allowable limits.

Note: In the event of an injury, subcontractor employees will be taken to the closest INEEL medical facility (Central Facilities Area [CFA] -1612) to have an injury stabilized before transport to the subcontractor's treating physician or medical facility.

In the event of a known or suspected injury or illness because of exposure to a hazardous substance or physical or radiological agent, the employee will be transported to the nearest INEEL medical facility for evaluation and treatment, as necessary. The HSO is responsible for obtaining as much of the following information as is available to accompany the individual to the medical facility:

- Name, job title, work (site) location, and supervisor's name and phone number
- Substance, physical or radiological agent exposed to (known or suspected), and material safety data sheets (MSDS), if available
- Nature of the incident, injury, or exposure and related signs or symptoms of exposure

- First aid or other measures taken
- Locations, dates, and results of any airborne exposure monitoring or sampling
- Personal protective equipment in use during this work (e.g., type of respirator and cartridge used).

Further medical evaluation will be determined by the treating or examining physician, according to the signs and symptoms observed, hazard involved, exposure level, and specific medical surveillance requirements established by the OMP director in compliance with 29 CFR 1910.120.

The RWMC shift supervisor will be contacted if any injury or illness occurs at a project site. As soon as possible after an injured employee has been transported to the INEEL medical facility, the FTL or designee will make notifications as indicated in Section 11.

5.3 Substance-Specific Medical Surveillance

Extensive sampling and analysis data exist for water samples collected from WAG 7 wells located inside and outside of the RWMC facility. Based on these data, only trace amounts of radionuclide and chemical contaminants have been detected in water samples and are considered below concentrations that would yield airborne fractions approaching health-based occupational exposure values (e.g., OSHA PELs, or American Conference of Governmental Industrial Hygienist [ACGIH] threshold-limit values [TLVs]) for these contaminants.

No chemical contaminants monitored for during WAG 7 routine monitoring have an OSHA substance-specific standard. Based on this, additional regulatory mandated substance-specific medical surveillance does not apply. If new contaminants of concern are identified during the course of WAG 7 routine monitoring tasks, exposures will be evaluated and quantified to determine whether a substance-specific standard applies. If regulatory-mandated substance-specific standard action levels are triggered, then affected personnel will be enrolled in applicable medical surveillance programs.

6. ACCIDENT PREVENTION PROGRAM

The WAG 7 routine monitoring activities present primarily physical hazards and very limited potential chemical hazards to personnel conducting tasks; however, scope of routine monitoring work includes not only well-sampling tasks but also more complex and hazardous tasks (e.g., well maintenance and decommissioning) that require more detailed planning and hazard mitigation strategies. It is important that all personnel participating in routine monitoring activities understand and follow the project-specific requirements of this HASP, JSA hazard mitigation and PPE requirements, and applicable work package(s) steps and hold points (where applicable) to control hazards.

Engineering controls, hazard isolation, work practices and training, and the use of PPE will all be implemented to eliminate or mitigate potential hazards and personnel exposures; however, all routine monitoring personnel have responsibilities in the hazard identification and control process. These include the following:

- Participation in the hazards identification process based on the scope of work
- Participation in the hazard walkdowns of the areas where routine monitoring activities will take place
- Assistance in the completion of hazard screening checklists or hazard profile screening checklists (as applicable)
- Attendance at the prejob briefing and subsequent PODs to ensure all workers have a clear understanding of the scope of work, associated hazards, and mitigation requirements

Note: If the scope of work, hazards identified, hazard mitigation (including PPE requirements) or work control documentation is not clearly understood, personnel will ask the FTL for clarification **before signing the prejob attendance sheet and before starting work**.

- Recognition of changing conditions, scope of work, and new hazards requiring mitigation and taking appropriate action to communicate these condition to the FTL, halt activities, or stop work (where appropriate) in accordance with MCP-553, "Stop Work Authority," until new scope or hazards are adequately addressed in work control documents and mitigation is in place.

All field team members must participate in the hazard identification and mitigation process for an accident prevention program to be effective. This process will be ongoing during the course of routine monitoring activities and as additional tasks (scopes of work) are initiated. Feedback to the FTL and communication between workers about routine monitoring lessons learned is critical to ensure tasks are being conducted in the safest and most efficient manner. The daily POD and post-job briefing provide a formal forum for sharing lessons learned and contributing ideas for safer and more efficient ways to do work; however, new ideas and lessons learned should be shared before work is being conducted to be most effective.

6.1 Voluntary Protection Program and Integrated Safety Management

The INEEL safety processes embrace the VPP and ISMS criteria, principles, and concepts as part of operational excellence. All levels of management are responsible for implementing safety policies and programs and for maintaining a safe and healthy work environment. Project personnel and subcontractors are expected to take a proactive role in preventing accidents, ensuring safe working conditions for themselves and fellow personnel, and complying with all work control documents and procedures.

The ISMS is focused on the system side of conducting operations, and VPP concentrates on the people side of conducting work, but both define work scope and identify, analyze, and mitigate hazards. The VPP is a process that promotes and encourages continuous safety improvement; however, it is not a requirement of any regulatory agency. The INEEL and affected subcontractors participate in VPP and integrated safety management for the safety of their employees. Additional information regarding the INEEL VPP and ISMS programs can be found in Program Design Document (PDD) -1005, "INEEL Line Management and Operations Manual." The five key elements of VPP and ISMS are:

Voluntary Protection Program	Integrated Safety Management System
Management leadership	Define work scope
Employee involvement	Analyze hazards
Worksite analysis	Develop and implement controls
Hazard prevention and control	Perform work within controls
Safety and health training	Provide feedback and improvement

6.2 General Safe-Work Practices

The following practices are mandatory for all INEEL and subcontractor personnel working on WAG 7 routine monitoring sites. All site visitors entering designated or controlled work areas must follow these practices. The FTL and HSO are responsible for ensuring these hazard control practices are followed at the site.

Note: Failure to follow these practices may result in permanent removal from the site and other disciplinary actions.

- Access into designated or controlled work areas will be limited to authorized INEEL, subcontractor, and visitor personnel only.
- DO NOT enter controlled work areas or areas posted with DANGER signs unless authorized by the FTL.
- Comply with all safety signs, color codes, and barriers and DO NOT cross safety or radiological barriers unless you understand the hazard within and have the proper training to access the area. Adhere to PRD-5117, "Accident Prevention Signs, Tags, Barriers, and Color Codes."
- Absolutely no eating, drinking, chewing gum or tobacco, smoking, applying cosmetics, or participating in any other practice that increases the probability of hand-to-mouth transfer and ingestion of materials will be allowed, except in designated eating or break areas.
- Wear all prescribed personal protective equipment (minimum of Level D) and comply with PRD-5121, "Personal Protective Equipment" requirements.
- Be aware of walking and working surface conditions (i.e., wet, snow, mud, frost, ice covered), apply sand or salt (where appropriate), and wear adequate footwear to prevent slips and falls.
- Do not wear finger rings, loose clothing, wristwatches, and other loose accessories when within arm's reach of moving machinery.

- Report unsafe equipment, defective or frayed electrical cords, and unguarded machinery to the FTL or HSO.

- Ground-fault protection will be provided whenever electrical equipment is used outdoors.

- Project personnel will ensure that electrical equipment, wiring, cables, switches, and current overload protection devices meet applicable regulations and are maintained in a manner that provides protection for project personnel from shock hazards and injury, and prevents property damage in accordance with MCP-3650, "Chapter IX Level I Lockouts and Tagouts;" MCP-3651, "Chapter IX Level II Lockouts and Tagouts;" and RWMC supplements.

- Keep all ignition sources at least 15 m (50 ft) from explosive or flammable environments and use nonsparking, explosion-proof equipment (if advised to do so by a safety professional).

- Be alert for dangerous situations, strong or irritating odors, or airborne dust or vapors, and report all potentially dangerous situations to the FTL.

- Check weather forecasts and be alert to changing weather conditions that could present hazards to personnel (e.g., lightning, high winds, and winter storms).

- Be familiar with, understand, and follow project emergency procedures (see Section 11).

- Be familiar with the physical characteristics of the task site, including but not limited to the following:

  - Wind direction

  - Accessibility of fellow personnel, equipment, and vehicles

  - Entry and exit routes from the weather structure

  - Communications at the task site and with the RWMC shift supervisor

  - Major roads and means of access to and from the cold test pit south and north sites

  - Nearest water sources and fire fighting equipment

  - All RWMC and project warning devices and alarms

  - Capabilities and location of RWMC incident response team and INEEL fire department.

- Prevent releases of hazardous materials including those used at the task site. If a spill occurs, try to isolate the source (if possible, and if doing so does not create a greater exposure potential) and then report it to the FTL. The RWMC shift supervisor will be notified and additional actions taken as described in Section 11. Appropriate spill response kits or other confinement and absorbent materials will be maintained at the task site

- Report all broken skin or open wounds to the HSO or FTL. The OMP physician will consider how the wound can be bandaged and will recommend PPE to be worn by the injured employee.

Note: Personnel with unprotected wounds will not be permitted to enter the controlled work area without proper bandaging.

- Personnel working in the controlled work area will implement the "buddy system" (see Subsection 6.5)

- All personnel have the authority to initiate **STOP WORK** actions in accordance with MCP-553.

6.3 As Low as Reasonably Achievable Principles

Groundwater monitoring data (see Section 8) from existing WAG 7 wells, lysimeters, and purge water have demonstrated that radionuclide levels are in the picocurie per liter (pCi/L) range and that radiological contamination from groundwater at these sites presents only a minimal radiological exposure hazard (external or contamination). Based on this minimal hazard potential, as low as reasonably achievable (ALARA) principles will be followed where the potential exists for contact with water with trace radionuclide contaminants (at well as lysimeter locations inside the RWMC facility).

Radiological contamination monitoring will be conducted at specific WAG 7 locations during routine monitoring tasks based on previous groundwater radionuclide sampling data and based on the potential for encountering contamination during maintenance and decommissioning tasks, as specified in technical procedures and as deemed appropriate by RWMC radiation control (RADCON) personnel. If contamination is detected at levels that alert personnel to changing conditions (e.g., above background or RWP limits, if written), personnel will isolate potentially contaminated equipment or surfaces and halt activities until adequate controls can be implemented.

All radiation exposure to project personnel will be controlled such that radiation exposures are well below regulatory limits and that there is no radiation exposure without commensurate benefit. Unplanned and preventable exposures are considered unacceptable. The goal is to eliminate or minimize radiation exposures and all project personnel have the responsibility to follow ALARA principles and practices. Personnel working at the site will strive to keep both external and internal radiation doses ALARA by adopting the practices described below.

6.3.1 External Radiation Dose Reduction

Basic protective measures used to reduce external doses of radiation include the following items:

- Minimizing time in radiation areas

- Maximizing the distance from known sources of radiation

- Using radiation protection shielding.

Personnel will adhere to all radiological postings in the SDA, wear required dosimetry, and contact an RCT if contamination is suspected of being encountered during any routine monitoring task. An RWP may be written for specific routine monitoring maintenance, decommissioning, or abandonment operations as deemed appropriate by RADCON personnel and in accordance with MCP-7, "Radiological Work Permit."

6.3.2 Internal Radiation Dose Reduction

An internal dose of radiation is a result of radioactive material being taken into the body. Radioactive material can enter the body through inhalation, ingestion, absorption through wounds, or injection from a puncture wound. Reducing the potential for radioactive material to enter the body is critical to avoiding internal doses of radiation. Monitoring for contamination will be conducted using hand-held instruments and in accordance with MCP-357, "Job-Specific Air Sampling/Monitoring," and as deemed appropriate by RWMC RADCON personnel and as specified in applicable RWPs.

6.4 Chemical Contaminant Exposure Avoidance

Groundwater monitoring data (see Section 8) from existing WAG 7 wells, lysimeters, and purge water have demonstrated that chemical contaminant levels are in the microgram per liter (μg/L) range. Based on the water matrix these contaminants are in, and the minimal exposure time for personnel conducting sampling and handling tasks, the potential for approaching health-based exposure limits (i.e., PELs or TLVs) is considered minimal to negligible.

Other sources for chemical exposure include the following:

- Acids used to preserve water samples
- Potential trace contaminants in the SDA overburden that may be encountered during well abandonment tasks
- Fuels used for generators and powered equipment
- Bentonite, cement, and concrete used during abandonment tasks
- Small amounts of petroleum-based lubricants that may be used during maintenance tasks.

Some of these contaminants may pose a contact hazard from skin, mucous membrane, or eye contact and the implementation of avoidance practices in conjunction with PPE usage will serve to minimize the potential for exposures. Some methods of exposure avoidance include:

- Isolating known sources of contamination through the use of engineering controls or barriers
- Using laboratory hood for acid handling and sample preservation tasks
- Wearing all required PPE, when required, and inspecting all pieces and taping all seams before donning
- Donning and doffing PPE following radiological protocols if additional outer protective clothing is required
- Washing hands, face, and other exposed body surfaces before eating, drinking, smoking, or participating in other activities that may provide a pathway for contaminants.

6.5 The Buddy System

The two-person or buddy system will be used at routine monitoring sites when a controlled work area has been established as required by the RWMC shift supervisor, and in accordance with MCP-2725,

"Field Work at the INEEL." The buddy system requires workers to assess and monitor their buddy's mental and physical well being during the course of the workday. A buddy must be able to:

- Provide assistance
- Verify the integrity of PPE (when required)
- Observe partner for signs and symptoms of heat stress, cold stress, or contaminant exposure
- Notify other personnel in the controlled work area if emergency assistance is needed.

Workers need to be able to see or hear and effectively communicate with their buddy at all times when in the controlled work area.